

NOTES ON THE NEVADA BUCK MOTH, *HEMILEUCA NEVADENSIS* (SATURNIIDAE) IN SOUTHERN MANITOBA

Additional key words: Tachinidae, *Leschenaultia*, bur oak, Hemileucinae, *Apoecilus*.

Observations on the Nevada buck moth, *Hemileuca nevadensis* Stretch, in southern Manitoba are reported, along with information regarding new predator and parasitoid associations for this species, as well as a new host plant association. In Manitoba, *H. nevadensis* has been collected in widely separated localities like Aweme, Selkirk, Victoria Beach, and Winnipeg. Limited collection records indicate that the flight period in southern Manitoba begins in late August or early September. Adults are day flying, with mating and ovipositing occurring the same day (Tuskes et al. 1996). Eggs are laid in rings around twigs of willows (*Salix* spp.) and trembling aspen (*Populus tremuloides* Michaux). Eggs overwinter and hatch early in the spring, almost synchronously with leaf flush. During the first three instars larvae are black in coloration and are gregarious (Tuskes et al. 1996). In southern Manitoba, pupation occurs in mid-summer (late-June to mid-July). Adults eclose approximately two months later. Little else is known about the biology of this species in southern Manitoba.

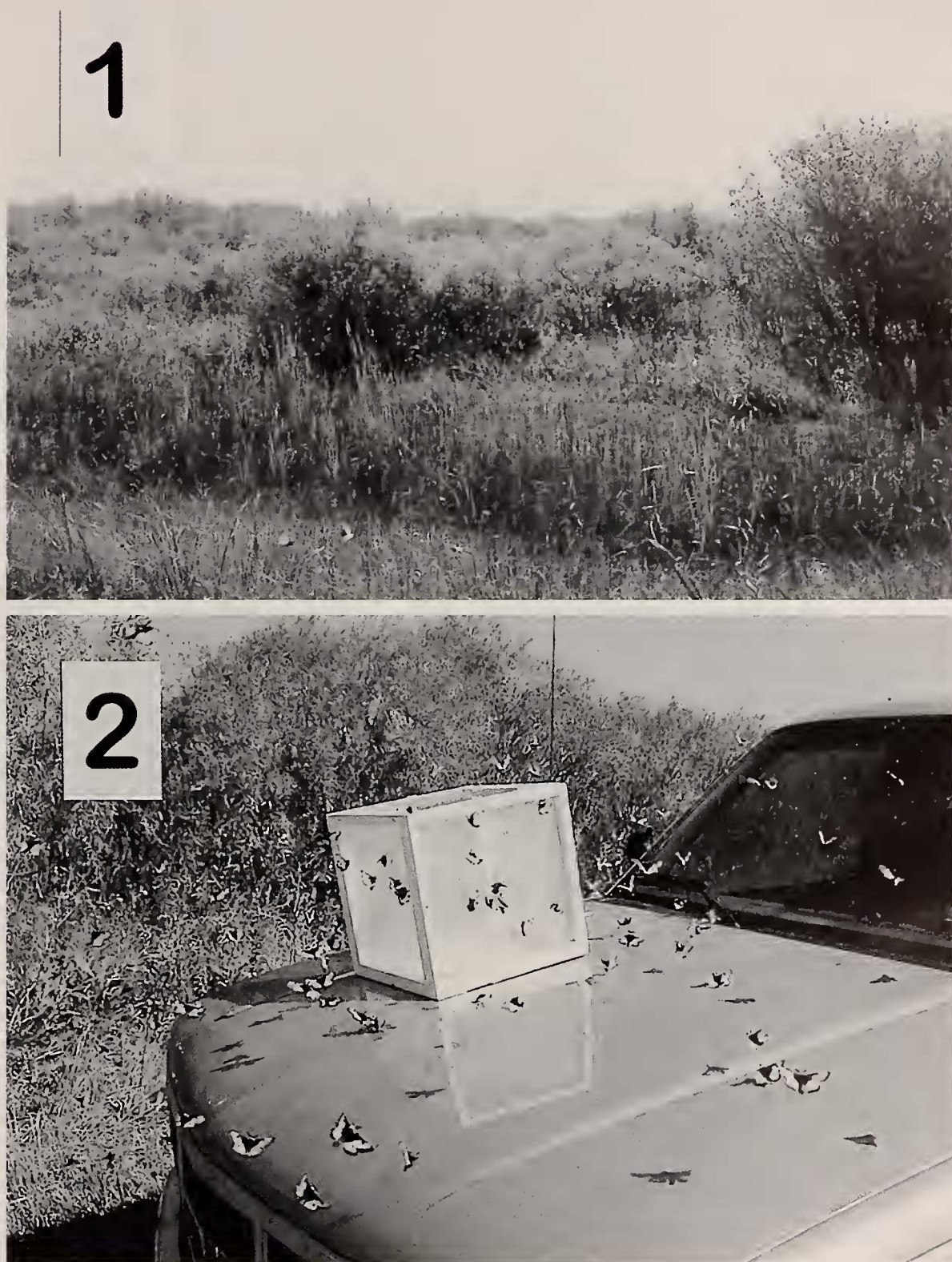
In early June 1998, several students and faculty from the University of Manitoba Department of Entomology traveled to the Manitoba Tall Grass Prairie Preserve located approximately 10 km east of the town of Roseau River, Manitoba (49.06°N, 96.7°W), (Fig. 1). This locality is characterized as having an abundance of grasses, willows and poplars. Predominant grasses include big bluestem, *Andropogon gerardii* Vitman and little bluestem, *Schizachyrium scoparium* (Michx.) Nash (Gramineae). The junior author observed several hundred clusters of unidentified larvae feeding on the foliage of *Salix* spp. and *P. tremuloides*. Casual observation at this locality for at least the two years previous did not detect larval clusters. Several larval clusters were collected and returned to the laboratory for determination. Larvae were reared to maturity and identified by the senior author as *H. nevadensis*. The junior author also collected one larval cluster from bur oak, *Quercus macrocarpa* Michaux. This plant has not been previously reported as a food-plant for *H. nevadensis*. The closely related *H. maia* (Drury) has been reported to feed on various species of oak. However, *H. maia* is not known to occur in Manitoba. Tuskes et al. (1996) cited a record of *H. nevadensis* larvae feeding on coastal live oak, *Quercus agrifolia* Nee, in California.

On 2 July 1998, the authors returned to the site of the original larval collections. At this time most larvae were in sixth-instar and could be collected by the hundreds from willow bushes in the area. Larvae were less commonly found feeding on foliage of *P. tremuloides* and *Q. macrocarpa*. Larvae that were feeding on *Q. macrocarpa* were stunted and appeared to be lagging a full instar behind larvae feeding on the other food-plants. One larva feeding on willow was observed under attack by a stink bug, *Apoecilus bracteatus* (Fitch) (Hemiptera: Pentatomidae). This predaceous stink bug is known to attack a diverse range of soft-bodied herbivorous insects (Evans & Root 1980). Kendall & Peigler (1981) reported that larvae of *Hemileuca grotei* Grote and Robinson were attacked by *Apoecilus cynicus* (Say) (cited as *Apateticus cynicus*) nymphs and adults.

Mature *H. nevadensis* larvae were noted to be polymorphic in coloration. The color of the integument ranged from yellow to almost completely black. Several hundred larvae were collected and returned to the laboratory in an effort to obtain parasitoids as well as living *Hemileuca* pupae. Pupae were maintained at 25°C and 14:10 photoperiod. Adults began emerging in the laboratory during late August 1998. Approximately one-half of the pupae did not produce adults and remained in diapause until the following fall. Tuskes et al. (1996) reported that a portion of *Hemileuca* populations may overwinter as pupae.

On 7 September 1998, the senior author returned to the collection locality with five virgin females. These females began calling during mid-morning, while enroute from Winnipeg. When the locality was being approached, males began following the vehicle. As soon as the vehicle stopped, hundreds of males were observed arriving from all directions in an effort to locate and mate with the caged females (Fig. 2). When the cage was opened, allowing wild males access, copulation occurred within ten seconds. Shortly thereafter, the remaining males dispersed.

The rate of parasitism of *H. nevadensis* larvae was estimated to be approximately 20%. Several hundred tachinid puparia were obtained. Puparia were stored in a 5°C chamber for approximately three months and afterwards maintained at 20°C and 16:8 photoperiod until emergence of adult flies. Adults were identified as *Leschenaultia fulvipes* (Bigot) (Diptera: Tachinidae).



FIGS. 1, 2. *Hemileuca nevadensis* at the Manitoba Tall Grass Prairie Preserve. 1, Collection locality habitat, 10 km East of Roseau River. 2, Wild *Hemileuca nevadensis* males attracted to caged virgin females. Both photos taken 5 September 1998 by DCH.

This species has not been recorded as attacking *H. nevadensis*, but has been recorded from *H. maia*, *H. grotei*, and *H. lucina* (Arnaud 1978, Kendall & Peigler 1981, Peigler 1994). Members of this genus lay mi-

crotypic eggs on foliage. Eggs hatch shortly after ingestion by the host (Brooks 1946). A figure of this parasitoid ovipositing at *Hemileuca* larvae is in Tuskes et al. (1996:26). Preserved egg rings, larvae and adults of *H.*

nevadensis, and adult *Leschenaultia fulvipes* were deposited in the J. B. Wallis Museum of Entomology, University of Manitoba Department of Entomology.

Identification of adult *Hemileuca* followed the descriptions of Ferguson (1971) and Tuskes et al. (1996). It should be noted here that Ferguson (1971) referred to the Manitoba populations of *H. nevadensis* as *latifascia* Barnes and McDunnough. The population of *Hemileuca* near Roseau River, Manitoba seems to be somewhat enigmatic. The association of several larval clusters with *Q. macrocarpa* would appear to be a *H. maia* trait. Ferguson (1971) was unsure that *H. nevadensis* warranted treatment as a 'full' species, since he could not distinguish the genitalia from those of *H. maia*. Ferguson (1971) also discussed the existence of transitional populations between *maia* and *nevadensis* in the Midwest. The *H. nevadensis* population near Roseau River, Manitoba may represent one such transitional population. Tuskes et al. (1996) discuss the taxonomic problems associated with this genus in the Great Lakes region and assert that more research on *Hemileuca* populations in this region is needed to resolve their taxonomic status.

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